STATE UNIVERSITY OF IOWA.

Rudolph Martin Anderson: 'The Birds of Iowa.'

Charles Howard Edmonson: 'The Protozoa of Iowa.'

Daniel Starch: 'Perimetry of the Location of Sound.'

UNIVERSITY OF NEBRASKA.

Charles Newton Gould: 'The Geology and Water Resources of Oklahoma.'

Jesse Perry Rowe: 'Montana Coal and Lignite Deposits.'

Robert Thompson Young: 'Development of *Cysticercus*.'

UNIVERSITY OF COLORADO.

Heman Burr Leonard: 'On the Factoring of Composite Algebras.'

James Underhill: 'Areal Geology of Lower Clear Creek.'

GEORGE WASHINGTON UNIVERSITY.

Cornelius Lott Shear: 'Cranberry Diseases.'

Martin Norris Straughn: 'The Chemistry of Different Varieties and Individual Ears of Sweet Corn as affected by Enzymes, Climatic Conditions and Breeding.'

UNIVERSITY OF ILLINOIS.

Melville Amasa Scovell: 'The Salicylic Modification for determining Nitrogen by the Kjeldahl Method.'

Perry Fox Trowbridge: 'Proteids of Flesh.'

LELAND STANFORD JUNIOR UNIVERSITY.

John Merton Aldrich: 'A Catalogue of North American Diptera.'

Walter Kenrick Fisher: Part I., 'Anatomy of *Lattia gigantea* Gray.' Part II., 'Starfishes of the Hawaiian Islands.' Part III., 'Holothurians of the Hawaiian Islands.' Part IV., 'Starfishes of California.' Part V., 'Starfishes collected by the Steamer *Albatross* in Alaska, in 1903.'

WASHINGTON UNIVERSITY.

George Grant Hedgcock: 'Studies upon Some Chromogene Fungi which discolor Wood.'

Perley Spaulding: 'Studies on the Lignin and Cellulose of Wood.'

UNIVERSITY OF WISCONSIN.

Irving Walter Brandel: 'Plant Pigments.'

John Langley Sammis: 'On the Relation between Electrolytic Conductivity and Chemical Activity.'

BROWN UNIVERSITY.

Vahan Simon Babasinian: 'A Study of the Methods of Preparation and the Properties of α-Phenyl-Naphthalene-Dinitro-Dicarboxylic Anhydride.'

BRYN MAWR COLLEGE.

Frances Lowater: 'The Spectra of Sulphur Dioxide.'

UNIVERSITY OF MINNESOTA.

John Zeleny: 'The Velocity of the Ions produced by Röntgen Rays.'

NEW YORK UNIVERSITY.

Maximilian Philip: 'Form and Movements of Liquid Jets.'

VANDERBILT UNIVERSITY.

Griffith Thompson Pugh: 'The Pleistocene of South Carolina.'

WASHINGTON AND LEE UNIVERSITY.

A. F. White: 'Composition of the Waters of Rockbridge County, Virginia, and their relation to the Geological Formations.'

SCIENTIFIC BOOKS.

Gesammelte Werke. By ADOLF VON BAEYER. Vol. I., pp. 1–990, with an introduction, pp. i–cxxxii; Vol. II., pp. 1–1194. Braunschweig, Vieweg and Sohn. 1905.

The friends and students of Adolf von Baeyer deemed his seventieth birthday a fitting occasion for honoring him by the publication of his scientific papers, 278 in number, from 1857 to 1905; and Baeyer graciously gave his consent to the plan. In the introduction, pp. i–xx and xxviii–xxxi, the great chemist gives a brief and very interesting account of the chief events in his life; he then discusses, on pp. xxxi–xxxvii, the main trend and bearing of his scientific work.

Emil Fischer gives, on pp. xxi–xxvii, a striking sketch of the life in the laboratory of Baeyer at Strassburg.

"Es wurde nicht schulmässig unterrichtet sondern kameradschaftlich gearbeitet."

There is also a list, pp. lvi–cxviii, of all the scientific papers published from Baeyer's laboratories, Berlin, 1860–72; Strassburg, 1872–5, and Munich, 1875–1905.

It is hardly possible for any one who has

not had the privilege of being a student in his laboratory to realize the tremendous enthusiasm, energy and resourcefulness with which Baeyer has devoted himself to chemistry during the past forty-eight years. One of his great ambitions was to found a school of chemists; that he has succeeded remarkably in this respect is shown by the fact that for years he has held a position in the chemical world similar to that formerly possessed by Berzelius and by Liebig. In the official address of the German Chemical Society, presented in connection with the seventieth birthday festivities, it is admitted that no one since Berzelius and Liebig has exerted such an influence on chemical teaching and research as Baeyer—and yet Baeyer has written no textbook on chemistry, has made no claims as a pedagogue, and has not added to the science a new law or generalization.

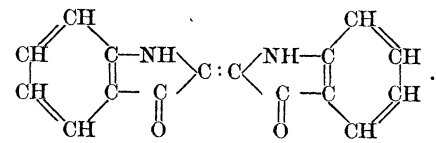
The fact that theories have had so slight an influence on his work—possibly because he realized to the fullest extent their inadequacy and temporary character, but especially because he did not need them in order to make scientific discoveries—deserves special emphasis. He possesses to a remarkable degree the rarest of scientific gifts, namely, the power to ascertain facts accurately regardless of theories—a power which is only to be found in those possessing experimental skill of the highest order. In this respect he is the direct antipode of Kekulé, who was especially interested in developing new views and was not interested in substances as such, and who at times gave one the impression of wishing to adjust nature in harmony with his own theories. In the words of Baeyer, his first student, 'Kekulé war der geborne chemische General, er wollte die Natur commandieren.'

Baeyer, on the other hand, having no special views to present or to defend, approached nature from a totally different standpoint; 'meine Versuche habe ich nicht angestellt um zu sehen ob ich recht hatte sondern um zu sehen wie die Körper sich verhalten.' In other words, he let nature or the facts teach him and then adjusted himself accordingly. One who knows Baeyer, either through personal contact or by means of a thorough and laborious study of his scientific publications, finds in him a love and respect for truth for its own sake which is both rare and admirable. This characteristic, taken in connection with the unusual experimental power shown in his work, explains the marked influence he has exerted on the development of the chemistry of carbon compounds. It is impossible to give here more than a brief statement of the direction of Baeyer's work which deals entirely with the chemistry of carbon.

Regardless of what the future may have in store for us concerning the disintegration of matter, it is certain that the chemistry of the element carbon must always remain of paramount interest because its development is absolutely essential to a fundamental knowledge of the chemical processes going on in the vegetable and animal kingdom and must lead ultimately to a scientifically exact biology and medicine.

Baeyer himself makes nineteen subdivisions in his work from 1857 to 1905; in many cases he was engaged for over a decade on a single subdivision and in most cases he was a pioneer in the field.

His work on indigo, from 1866–70 and from 1877–84, is of general interest because we have here one of the first instances in which a complex plant product was made by synthesis in the laboratory. The synthesis was preceded by years of labor which finally resulted in determining that the 'architecture' of the indigo molecule could be represented by the graphical formula



As the direct outcome of this work, indigo has been manufactured commercially since 1891 from anthranilic acid. Similarly another complex dyestuff, alizarine, has been made commercially since 1875 from coal-tar products, instead of from the madder root, owing to the work of Graebe and Liebermann in Baeyer's laboratory in 1868.

The 'architectural' method is in fact the only method by which we can reasonably hope to make progress in the synthesis of the various complex products found in nature; experience has shown that when the architecture of a definite chemical compound, no matter how complex, has once been thoroughly worked out, it is then often a comparatively simple matter to accomplish its synthesis—whereas the preliminary work may require decades of time.

The plant, which is the great synthetic agent in nature, manufactures at ordinary temperatures under comparatively simple conditions from the carbon dioxide of the air and from the material found in the soil—water, phosphates, nitrates, potassium and ammonium salts, etc.—a vast variety of complex carbon compounds which subsequently undergo various chemical changes in the animal world. There is abundant justification for the conclusion that when the conditions under which these various chemical processes take place are better understood we may reasonably hope to accomplish all these transformations in the laboratory. Much of the faithful and laborious work carried on by investigators in the field of carbon chemistry during the past seventy or more years must in fact be considered preliminary to the accomplishment of this great end.

Baeyer has always shown an unusually great interest in this direction; his indigo work, all his condensation work with aldehydes, alcohols, phthalic anhydride and various benzene derivatives, as well as his synthetic work in the pyrrol, indol, pyridine and quinoline series —all were undertaken with this end in view. He has emphasized the important rôle which formaldehyde must play in the conversion of the carbon dioxide of the air by plants into sugar and starch and has also in this connection discussed theoretically, in 1870, the chemistry of fermentation.

His very important work on the constitution of benzene from 1866–73 and from 1885–94, although fruitless in the main point at issue, led to a thorough and systematical development of the chemistry of di-, tetra- and hexahydro-benzene compounds; this work naturally led him into the field of terpentine chemistry, on which he has spent eight years, from 1893–1901, working out the 'architecture' of many of these important vegetable products as well as synthesizing some of the simplest representatives of the series.

His most recent work has dealt with peroxides, with dibenzalacetone and triphenylmethane and with the basic properties of oxygen. The fact that all carbon compounds containing oxygen, except the peroxides, are capable of forming oxonium salts, containing quadrivalent oxygen, was established by Baeyer on the basis of Collie and Tickle's work on dimethylpyrone; this discovery has excited very general interest.

J. U. NEF.

SOCIETIES AND ACADEMIES.

THE IOWA ACADEMY OF SCIENCE.

THE twentieth annual meeting of the Iowa Academy of Science was held on April 20–21, 1906, in the botanical rooms of the Iowa State College, Ames, Ia. The magnificent new Central Hall was placed at the disposal of the academy. The meetings were all held in the botanical rooms with the exception of the Friday afternoon meeting, which was held in the physics lecture room of Engineering Hall.

Friday afternoon Dr. Hermann von Schrenk, of the U. S. Department of Agriculture, gave an address on the work of the 'Division of Pathology.' On Friday evening Professor Charles R. Barnes, of the University of Chicago, gave an illustrated lecture on 'How Plants breathe.' On Saturday forenoon Professor Charles E. Bessey, of the University of Nebraska, formerly of Iowa State College, gave an address on 'The Forest Trees of Eastern Nebraska.' The meeting of 1906 was probably the most enjoyable in the history of the academy.

The officers for the coming year are:

President—Professor C. O. Bates, of Coe College, Cedar Rapids.

First Vice-president—Professor G. E. Finch, Marion.

Second Vice-president—Professor A. A. Bennett, Iowa State College, Ames.